10/691,746

Amendments to the Specification:

Because there were inconsistencies in the paragraph numbering in the specification as originally filed, the following paragraph numbers refer to those of US PGPUB 2005/0089773, which is the published version of the present patent application.

1. Please replace paragraph [0005] with the following amended paragraph:

[0005] Ideally, each layer is perfectly aligned to previously existing layer. Typically, the layers are misaligned, thus a ~~n~~ misalignment or overlay error exists between each pair of layers.

2. Please replace paragraph [0007] with the following amended paragraph:

[0007] FIGS. 3a and 3b illustrate a commonly used overlay measurement target 90 that facilitates overlay measurements. Target 90 includes a first feature 91 formed in a first layer 92, a second feature 93 formed in a second layer 94 positioned under an aperture 95 that is formed in the first layer ~~91~~ 92 and in an intermediate layer 96 positioned between the first and second layers. Both features 91 and 93 are visible to illuminating charged particle beams or optical beams. The formation of apertures is further subjected to inaccuracies and overlay errors and also may change the electrical properties of the integrated circuit.

3. Please replace paragraph [0015] with the following amended paragraph:

[0015] FIG. 1 illustrates the important interaction ~~process~~ processes and various information volumes. An information volume is a space in which interaction ~~process~~ processes occur and result in scattering or reflection of electrons that may be eventually detected to provide information about the information volume.

4. Please replace paragraph [0025] with the following amended paragraph:

[0025] Effective defect review tool requires both types of detectors in order to capture all types of defects. In-lens detector 14 is usually used for determining a contrast between different

materials, and is also useful in voltage contract mode as well as in HAR mode. HAR mode is used to inspect cavities that are characterized by a High Aspect Ratio (in other words--cavities that are narrow and deep). During HAR mode the area that surrounds the cavity is usually charged to allow electrons from the lower portion of the cavity to reach the detector. The In-lens detector 14 is also very sensitive to pattern edges. External detectors 16 are much more sensitive to the topography of the wafer. ~~They~~ The external detectors are also less susceptible to wafer charging, which is significant when imaging highly resistive layers.

5. Please replace paragraph [0050] with the following amended paragraph:

[0050] FIG. 2b is an illustration of a portion 10' of multiple-detector SEM in accordance to an embodiment of the invention. FIG. 2b also illustrates an exemplary path of a primary electron beam ~~path~~, as well as the paths of electrons that are scattered or reflected from an inspected object, such as but not limited to a wafer or a reticle.

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6. Please replace paragraph [0051] with the following amended paragraph:

[0051] The primary electron beam propagates along an optical axis and is ~~than~~ then (i) tilted ~~at~~ in a first direction, (ii) tilted ~~at~~ in an opposite direction such as to propagate along a secondary optical axis that is parallel to the optical axis but spaced apart from the optical axis, (iii) tilted, ~~at~~ in a second direction, towards the optical axis and then (iv) tilted, ~~at~~ in a direction opposing the second direction, such as to propagate along the optical axis. The ~~mentioned~~ above-mentioned tilt operations may be generated by magnetic deflection coils 32-36. A system and method for double tilt is described at patent application Ser. No. 10/146,218 filed 13 May 2002, and is incorporated herein by reference. The electron beams are subjected to an electrostatic ~~filed~~ field that can be introduced by multiple electrodes of various shapes and arrangements. Some of the embodiments are illustrated ~~at~~ in U.S. patent application Ser. No. 10/423,289 titled "objective lens arrangement for use in a charged particle beam column", that is incorporated herein by reference.

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7. Please replace paragraph [0053] with the following amended paragraph:

[0053] In system ~~10~~ 10' the primary electron beam is directed through an aperture 18 within the in-lens detector 14 to be focused by the objective lens 12 onto an inspected wafer 20. Secondary

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electrons that propagate through the aperture of in-lens detector 14 are eventually tilted ~~at~~ in a second direction towards an inner-lens detector 40.

8. Please replace paragraph [0055] with the following amended paragraph:

[0053] Once electrons are ~~emitted~~ emitted/scattered as a result ~~as~~ of an interaction between the primary beam and the inspected object they are attracted, due to a strong electromagnetic field, towards the in-lens detector and to the aperture of that detector. The strength of the electrostatic field determines which secondary electrons are attracted to the in-lens detector and which are attracted to the aperture of the in-lens detector.

9. Please replace paragraph [0056] with the following amended paragraph:

[0056] Secondary electrons that propagate through the aperture of in-lens detector 14 are eventually tilted ~~at~~ in a second direction towards an inner-lens detector 40.

10. Please replace paragraph [0057] with the following amended paragraph:

[0057] By applying a relatively strong electrostatic field the inner lens detector detects electrons that were ~~one~~ once either not detected (passed through the aperture) or detected by the in-lens detector, while the in-lens detector detects electrons that once were detected by the external detectors.

11. Please replace paragraph [0060] with the following amended paragraph:

[0060] The second feature can be detected by detecting its ~~affect~~ effect upon the topography of the first layer (according to a first embodiment of the invention) and/or by detecting electrons that interact with the second feature itself (according to a second embodiment of the invention). When the detection depends upon interaction with the second ~~layer~~ feature then the kinetic energy of the electrons is such that the second feature is included within a second information volume, such as the relatively large second information volume 5 of FIG. 1.

12. Please replace paragraph [0061] with the following amended paragraph:

[0061] The small size of the overlay target enables ~~to position~~ positioning it within the die, to use multiple targets and even to use ~~tdie~~ die patterns as targets.

13. Please replace paragraph [0073] with the following amended paragraph:

[0073] According to an aspect of the invention measuring buried features, without creating an aperture allows ~~to measure~~ measurement of overlay error by inspecting features of the integrated circuit that were not intended to be overlay measurement targets. A search of the integrated circuit CAD file and/or layout may indicate the presence of non-overlapping first and second features that may be inspected in order to detect overlay errors.

14. Please replace paragraph [0074] with the following amended paragraph:

[0074] The present invention can be practiced by employing conventional tools, methodology and components. Accordingly, the details of such tools, ~~component~~ components and methodology are not set forth herein in detail. In the previous descriptions, numerous specific details are set forth, such as shapes of cross sections of typical lines, amount of deflection units, etc., in order to provide a thorough understanding of the present invention. However, it should be recognized that the present invention might be practiced without resorting to the details specifically set forth.